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1. Introduction

The recent COVID-19 pandemic highlights the importance of social media for operations and supply chain management (OSCM). Due to the wide spread of the virus nationally and internationally, governments around the world have implemented various measures such as travel restrictions, social distancing, workplace hazard controls, facility closures, and even national lockdowns, causing significant operations and supply chain disruptions to businesses and organisations (Evans, 2020; Singh, 2020). To minimise such disruptions and maintain daily operations, many firms have adopted social media tools that "build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of User Generated Content" (Kaplan and Haenlein, 2010, p. 61) to facilitate communication, interactions, and collaborations among internal employees as well as with external supply chain partners (PMR, 2020; Rodriguez, 2020). For instance, several major enterprise social media players such as Facebook Workplace, Microsoft Teams, and Slack have seen an explosive growth in daily active users since the pandemic (Nellis, 2020; Vanian, 2020). As Julien Codorniou, Facebook Workplace's Vice President, pointed out, the COVID-19 pandemic has accelerated the need for remote working and online collaboration tools and "what was supposed to happen in five years just happened in two months" (Rodriguez, 2020). Although it might be the first time for some firms to use enterprise social media tools as a result of the pandemic, social media, in fact, have been increasingly adopted for OSCM over the past few years. For example, a survey conducted by *MIT Sloan Management Review* a few years ago suggests that 87% of maturing companies use social media to spur innovation while 60% integrate them into operations (Kane et al., 2014). Our search via the Factiva news database[1] over a ten-year period also indicates that the number of articles mentioning social media and OSCM had increased significantly by more than 500% from 2010 to 2019, as shown in Figure 1.

----- Figure 1 about here -----

----- Figure 2 about here -----

Despite the increasing popularity and importance of social media for OSCM, it seems that our research community has paid limited attention to the emerging social media phenomenon. As shown in Figure 2, we were able to identify only 17 empirical social media papers published in the top three Operations Management (OM) journals, i.e., *Journal of Operations Management* (*JOM*), *International Journal of Operations and Production Management* (*IJOPM*), and *Production and Operations Management* (*POM*) (Chartered Association of Business Schools, 2018) as of 2019. On average, there were about three social media papers published in each year across the three journals or one paper per journal-year. It should also be noted that the first social media paper identified was published in 2014

[1] The keywords used in our search combined "social media" with "supply chain" or "operations management."

(i.e., Gu and Ye, 2014), which was about ten years after the launches of some popular social media websites such as LinkedIn (2003), Facebook (2004), YouTube (2005), and Twitter (2006) (Wood, 2017) and also much later than those published in other business disciplines such as Marketing and Information Systems. In fact, several top business journals such as *Marketing Science* and *Information Systems Research* already published special issues focused on social media about seven or eight years ago (e.g., Aral et al., 2013; Fader et al., 2012). Therefore, about two years ago, we saw the pressing need for publishing a special issue focused on social media and OSCM to encourage more researchers to engage in this emerging research area. *IJOPM*'s Editors-in-Chief agreed with our view, allowing us to organise and publish this special issue in the journal. We received an enthusiastic response from the our research community including authors and reviewers, leading to seven high-quality papers published in this special issue. We believe that these seven papers, with their varying research questions, theories, and methods, provide a suitable exemplar of state-of-the-art research concerned with the use of social media in OSCM. However, as research on the use of social media in OSCM is still at its early stage, we see the merit of reviewing relevant social media papers published in other business disciplines to enable us to learn from their experiences and insights. Therefore, in the following sections we first introduce the seven papers included in this special issue and then review relevant social media papers published in other top business journals, highlighting several areas ranging from research topics to research methods that we can learn from those disciplines.

2. About this special issue

After our special issue proposal was accepted by the Editors-in-Chief, we issued a call for papers, which was posted on *IJOPM*'s website in July 2018 (Cheng et al., 2018). We also promoted the call for papers via different online channels such as discussion forums (e.g., Informs Connect and Connect@AOM), social networking sites (e.g., Marketing Scholars' Facebook page, and ORMS Tomorrow's Twitter handle), and dedicated "call for papers" websites of a number of academic associations (e.g., British Academy of Management and Academy of International Business), as well as Listserv email lists (e.g., AISWorld and OCISNET). We realised that not many OM researchers had experience in conducting social media research and therefore decided to hold a workshop to encourage more researchers to engage in this emerging area and to start to build a stronger research community. We issued a call for abstracts[2] to invite researchers to attend and present their social media research at the workshop and to seek feedback from the guest editors of this special issue. We also made it clear in the call for abstracts that "submitting abstracts to the workshop and submitting papers to *IJOPM*'s special issue are independent activities; authors do not have to attend the workshop in order to submit their papers to the special issue." The two-day research workshop was held at the University of Liverpool on 21-22 March 2019 and attended by about 70 researchers from around the world. In addition to 24 accepted abstracts

[2] The call for abstracts is available at https://www.researchgate.net/publication/328823083.

presented in six parallel sessions, the workshop included keynote speeches given by two social media researchers from Marketing (Caroline Wiertz of City University of London) and Information Systems (Xitong Li from HEC Paris), an *IJOPM* EIC session chaired by Cristina Gimenez to provide insights into publishing in the journal, and a guest editor session chaired by the guest editors to explain the call for papers of the special issue and to answer any relevant queries[3]. We received very positive feedback from researchers attending the workshop and believed it motivated researchers to submit their work to the special issue.

Ultimately, we received 44 submissions to the special issue. Each submitted paper was either desk rejected by the guest editors (mainly due to out of scope) or sent out to be assessed by two reviewers. After receiving the review reports from the two reviewers, the guest editors read the paper and the review reports carefully and decided whether the paper should be rejected or given a chance for revision to address the reviewers' concerns. When a revision decision was made, the guest editors also provided detailed, specific guidance for the authors to revise the paper. Twelve revision invitations were sent after the first round of reviews, resulting in a final seven papers accepted for publication in this special issue. These seven papers display broad diversity in terms of research questions, theories, and methods, as summarised in Table 1. We provide a brief introduction of these seven papers in the following paragraphs.

----- Table 1 about here -----

Banerjee et al. (2020) investigate how buyers respond to social media signals in the supplier selection process. They focus on two types of social media signals, i.e., volume and valence of social media ratings received by suppliers, and consider how these signals are interpreted in the context of varying deal sizes and price points. Conducting two experiments using choice-based conjoint experimental design, they find that both volume and valence are positively correlated with supplier selection, but the signals exhibit diminishing returns and the efficacy of valence is interpreted in the context of volume. Although the relationships between social media signals and supplier selection are not influenced by deal sizes, they are negatively moderated by deviations from the reference prices. This research reveals the complex roles of social media signals in the supplier selection process, providing important implications for buyers, suppliers, and platform owners.

Cui et al. (2020) examine how team social media usage affects team members' in-role and extra-role knowledge sharing and their individual job performance. They also consider the possible two-sided effects of team performance norms. They rely on the theory of communication visibility to develop the research hypotheses and conduct a cross-level analysis based on a three-wave survey from 600 individuals in 120 teams. Their analysis shows the partial mediating roles of in-role and extra-role knowledge sharing in the relationship between team social media usage and individual job performance. Interestingly, team performance norms are a double-edged sword: they have a positive main effect on

[3] The detailed workshop agenda is available at https://www.researchgate.net/publication/331249101.

job performance but negatively moderate the relationship between extra-role knowledge sharing and job performance. Overall, this research provides a compelling cross-level perspective on the dynamic interactions between teams (team social media usage and team performance norms) and individuals (individual knowledge sharing and individual job performance).

Guo et al. (2020) adopt resource dependence theory to study how using social media for customer service (termed social media-based customer service) affects firm reputation. They also explore the boundary factors in terms of absorptive capacity, ISO 9000, and training for management and employees. Based on secondary data collected from five databases covering 115 firms from 2007 to 2016, their dynamic panel data analysis finds a positive relationship between social media-based customer service and firm reputation. This positive relationship is reinforced when the firm has a high absorptive capacity, adopts ISO 9000, and offers periodic training for management and employees. This research contributes to service operations management by highlighting the reputation implications of using social media for customer service and the complementary roles of firms' existing resources such as absorptive capacity, quality management systems, and employee training.

Tang et al. (2020) focus on the dark side of social media connectivity, i.e., the use of social media after work hours for work purposes, an emerging phenomenon in OSCM. They use the conservation of resources theory to explain how social media connectivity leads to emotional exhaustion and affects turnover intentions of supply chain professionals, contingent on work-life balance. Using survey data collected at multiple times from a large Chinese pharmaceutical manufacturer and distributor, their analysis confirms the mediating role of emotional exhaustion in the relationship between social media connectivity and turnover intentions of supply chain professionals. Nevertheless, work-life balance helps dampen the exhausting effect of social media connectivity on emotional exhaustion. This thought-provoking work reveals the dark side of social media in OSCM, inspiring researchers to explore this under-researched but important research topic and to advance our understanding of the related phenomenon.

Tóth et al. (2020) adopt an organisational attractiveness perspective to explore how suppliers' social media activities influence their attractiveness as perceived by buyers. Based on interviews with 57 senior managers from both supplier and buyer sides, they reveal an interesting inverse U-shaped relationship between the intensity of a supplier's social media activity and its attractiveness as perceived by buyers, highlighting the possible drawback of being "too social" on social media. They also compare the differences between buyers' and suppliers' perspectives on the role of social media in managing supplier attractiveness. This research enriches our understanding of the complex, dynamic relationship between social media activities and organisational attractiveness from both buyers' and suppliers' perspectives.

Wang et al. (2020) employ contingency theory to explain how the impact of social media analytics on customer satisfaction is contingent on the characteristics of different external stakeholders including partners, competitors, and customers. Using both primary and secondary data from multiple

sources concerning 141 hotels operating in Greece, their structural equation modelling analysis confirms the positive relationship between social media analytics and customer satisfaction, and more importantly demonstrates the contingent roles of external stakeholders' characteristics. In particular, they show how a firm's partner diversity, localised competition, and customer engagement moderate the impact of its social media analytics on customer satisfaction. Overall, this research highlights the critical roles that external stakeholders play in affecting the success of a firm's implementation of social media analytics.

Zhan et al. (2020) study how social media can provide important platforms to facilitate organisational learning and innovation in the new product development process. Based on 56 interviews with 13 world-leading Chinese companies, their multiple case study identifies three distinct mechanisms, including dynamic scanning for ideation, collective learning for R&D, and fast-launch-and-improve cycle for testing and launch, for firms to leverage social media in different phases of the new product development process. They also reveal several organisational enablers that connect these mechanisms to the performance of new product development. Overall, this research offers some new insights into the use of social media in new product development and provides important implications for research and practice.

3. What can we learn from other business disciplines?

After introducing the seven papers published in this special issue, we move on to reviewing social media papers published in other business disciplines to ascertain what we can learn from them. We identified relevant social media papers in the following ways. First, we focused on business journals rated as 4*, i.e., journals of distinction, in the Academic Journal Guide 2018 (Chartered Association of Business Schools, 2018). We excluded those 4* journals that do not concentrate on business and management studies such as journals in the categories of Economics, Psychology, and Social Sciences. We also dropped 4* journals that do not publish empirical papers such as *Academy of Management Review* and *Operations Research*, as well as those in our own discipline (e.g., *Journal of Operations Management*). However, we kept *Management Science* in our journal list as it publishes papers across different business disciplines such as Marketing and Information Systems. This selection process resulted in 23 journals, including *Academy of Management Journal*, *Accounting Review*, *Accounting, Organizations and Society*, *Administrative Science Quarterly*, *Information Systems Research*, *Journal of Accounting and Economics*, *Journal of Accounting Research*, *Journal of Consumer Psychology*, *Journal of Consumer Research*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of International Business Studies*, *Journal of Management*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of the Academy of Marketing Science*, *Management Science*, *Marketing Science*, *MIS Quarterly*, *Organization Science*, *Research Policy*, *Review of Financial Studies*, and *Strategic Management Journal*, for us to identify relevant social media papers.

We searched the social media papers published in these 23 journals via Scopus

(www.scopus.com), which contains the titles, abstracts, and keywords of all the papers published. We also double checked the search results through these journals' own websites. Due to time and resource constraints, we limited our search to the ten-year period from 2010 to 2019 and used "social media" as the search term to search the titles, abstracts, and keywords of the published papers. We were able to identify 190 papers based on this approach. We then read each of these 190 papers carefully and excluded those papers that are not focused on social media (although "social media" has been mentioned in their titles, abstracts, or keywords). In line with *IJOPM*'s scope and consistent with the seven papers published in this special issue, we also dropped those papers that have not performed empirical data analysis (e.g., theoretical papers, editorials, commentaries, review papers, simulation papers, and modelling papers). As a result, our final sample comprised 159 social media papers[4] published across 18 journals from 2010 to 2019, as shown in Table 2. It should be noted that as *Management Science* publishes papers across different business disciplines, we classified its social media papers based on the departments (e.g., Marketing Department, Information Systems Department) under which they were processed.

----- Table 2 about here -----

Table 2 suggests that five journals, i.e., *Administrative Science Quarterly*, *Journal of Accounting and Economics*, *Journal of Finance*, *Journal of Financial Economics*, and *Journal of International Business Studies*, had not published any social media research over the period 2010 to 2019. On the other hand, the top five journals with most social media papers are from the Information Systems, i.e., *Information Systems Research* and *MIS Quarterly*, and Marketing, i.e., *Journal of Marketing Research*, *Marketing Science*, and *Journal of Marketing*, disciplines. In terms of the average number of social media papers per journal, the Information Systems and Marketing disciplines still have the highest numbers (24 papers per journal for Information Systems and 9.7 papers per journal for Marketing), followed by Accounting (2.8 papers per journal), Management (1.2 papers per journal), Innovation (1 paper per journal), Finance (0.3 paper per journal), and International Business (0 papers per journal). This may be due to the ability of social media to enable "the creation and exchange of User Generated Content" (Kaplan and Haenlein, 2010, p. 61), which should be of interest to information systems researchers. Also, social media have been widely used for sales and marketing (Kiron et al., 2012), which should attract marketing scholars' attention.

----- Figure 3 about here -----

We also present the number of social media papers published in these journals across years in Figure 3, indicating that more social media papers have been published in recent years. In particular, more than half of the 159 social media papers were published in the recent three years over the ten-year investigation period (2010-2019). Even in the Information Systems and Marketing disciplines, there are still higher numbers of social media papers published in recent years, suggesting that social media

[4] A full list of the 159 papers is available upon request.

research is still not saturated in these more mature disciplines. On the other hand, in some less mature disciplines such as Management, Innovation, and Finance, the first social media paper was published in 2014, which is similar to our discipline.

----- Figure 4 about here -----

To provide an overview of the 159 papers, we obtained the keywords of each paper and produced a word cloud to indicate keyword frequency in terms of word size, as shown in Figure 4. It is not surprising to see that "social media" is the most frequently mentioned keyword across the 159 papers. Figure 4 also suggests that these papers cover many different social media platforms such as popular social networking sites (e.g., Twitter, Facebook), enterprise social media, blogs, online communities, and virtual communities. Regarding the research topics, while the word cloud is dominated by marketing-related topics such as (online) word of mouth, online reviews, advertising, social media marketing, viral marketing, customer engagement, marketer generated content, and brand communications, there are some other business topics being investigated such as knowledge sharing, electronic commerce, collaboration, contagion, crowdsourcing, disclosure, knowledge management, and shareholder value. It seems that theories are not frequently mentioned in the keywords of these papers, but Figure 4 still indicates a few theoretical perspectives being adopted such as information diffusion, social learning, sociomateriality, and speech act theory. Finally, Figure 4 demonstrates a great variety of research methods used to conduct social media research such as text mining, field experiment, vector autoregression, machine learning, natural experiment, natural language processing, structural modelling, sentiment analysis, propensity score matching, instrumental variables, and case study. In line with our classification of the keywords, we provide in the following sections a more detailed discussion of the four different areas, i.e., social media platforms, research topics, theoretical perspectives, and research methods, in which we can learn from those social media papers.

3.1 Social media platforms

There is no doubt that Twitter and Facebook are the most researched social media platforms across the 159 social media papers. This is consistent with the popularity of these two social media platforms among individual and corporate users. Nevertheless, the 159 papers also cover other general social networking sites such as Instagram (e.g., Li and Agarwal, 2017; Vieira et al., 2019) and Weibo (e.g., Gong et al., 2017; Seiler et al., 2017) as well as more dedicated social media platforms such as PatientsLikeMe (patient-focused; e.g., Kallinikos and Tempini, 2014), TripAdvisor (travel-focused; e.g., Orlikowski and Scott, 2014), Glassdoor (workplace-focused; e.g., Hales et al., 2018), and Seeking Alpha (investment-focused; e.g., Chen et al., 2014). Also, there is a growing research interest in internal enterprise social media (e.g., Beck et al., 2014; Leonardi, 2014) and the differences and dynamics across multiple social media platforms (e.g., Hughes et al., 2019; Song et al., 2019a). Therefore, we focus on these four types of social media platforms and discuss their implications for OSCM research.

General social networking sites. General social networking sites such as Facebook, Twitter, and

Weibo were originally designed for individuals to connect and interact with relatives, friends, and classmates but have been increasingly adopted for business purposes such as sales and marketing. Prior research has well demonstrated how to extract content generated on these social networking sites to measure sentiments towards products, brands, and originations (Gelper et al., 2018; Meire et al., 2019). Also, these sites' huge user bases (e.g., more than 300 million active users on Twitter) and publicly observable relationships (e.g., who follows whom on Twitter) make it possible to conduct advanced social network analysis that is difficult to achieve based on offline social networks (Song et al., 2019b; Wang et al., 2019). Although the extant literature on social networking sites has been dominated by research focused on marketing-related content, some researchers have started to investigate other types of content posted on these sites. For example, while Jung et al. (2018) examine firms' use of Twitter to disseminate quarterly earnings announcements, Oh et al. (2013) analyse tweets related to three social crises: the Mumbai terrorist attacks in 2008, the Toyota recall in 2010, and the Seattle café shooting incident in 2012. Similarly, instead of collecting all kinds of information from general social networking sites, OM researchers can focus on OSCM-related content to make their research better fit the scope of OM journals and appeal to OM reviewers. Chae's (2015) research represents one such attempt as it focuses on 22,399 tweets with the #supplychain hashtag collected from Twitter.

Dedicated social media platforms. Different from general social networking sites that are open to the general public, dedicated social media platforms are targeted at specific types of users such as investors (Seeking Alpha), travellers (TripAdvisor), patients (PatientsLikeMe), and employees (Glassdoor). Such a difference suggests that the content generated on these dedicated social media platforms should be more focused on certain topics. For example, Glassdoor hosts reviews submitted by current and former employees about their employers (Hales et al., 2018), whereas travellers visit TripAdvisor to rate and comment on hotels and restaurants (Orlikowski and Scott, 2014). These dedicated social media platforms provide rich information for researchers to measure context-specific variables. For instance, Hales et al. (2018) use employee reviews posted on Glassdoor to measure three types of employee opinions: employees' general feelings about their firms, employees' beliefs about their firms' future performance, and employees' expectations about personal growth opportunities. In this special issue, Wang et al. (2020) rely on TripAdvisor's review data to measure the customer satisfaction of 141 hotels operating in Greece. Another recent OM example is Ko et al. (2019) who collect physician reviews from Vitals to measure patient satisfaction and several dimensions of quality as perceived by patients. OM researchers can further explore the possibility of measuring other OSCM-related variables based on content generated on dedicated social media platforms, especially those covering OSCM topics (e.g., innovation, quality, sustainability).

Enterprise social media. Different from the two types of social media platforms discussed above that allow access from general Internet users, enterprise social media are designed for the communications, interactions, and collaborations among internal employees and, in some cases, with external supply chain partners. Firms can adopt standard enterprise social media packages from

software vendors directly (e.g., Facebook Workplace, Microsoft Yammer, Salesforce Chatter) or develop their own platforms internally (e.g., Unisys' My Site, Arrow's Virtual Bench, Tesco's Supplier Network). These platforms provide a unique opportunity for business researchers to conduct social media research beyond the sales and marketing context. For instance, Leonardi (2014) studies co-workers' knowledge sharing and innovation improvement enabled by enterprise social media, while Wu (2013) investigates the impact of adopting enterprise social media on employees' productivity and job security. Compared with other external social media platforms, enterprise social media should be more relevant to OSCM and be of interest to OM researchers. As researching enterprise social media is still at its early stage, we encourage OM researchers to take the opportunity to contribute to the emerging literature, although the difficulty of accessing and collecting data from enterprise social media should not be underestimated.

Multiple social media platforms. It becomes more common for individuals and firms to use more than one social media platform. This phenomenon has attracted the attention of business researchers who have started to investigate the differences and dynamics across multiple social media platforms. For instance, Hughes et al. (2019) find that blog platform and Facebook platform exhibit significant differences in drivers of online brand engagement, and Song et al. (2019a) show the interactions between marketer-generated content on Weibo and user-generated content on Douban Movies. Schweidel and Moe (2014, p. 387) warn that "approaches that either focus on a single social media venue or ignore differences across venues in aggregated data can lead to misleading brand sentiment metrics." Following this line of thought, some researchers further consider the possible interplay between social media platforms and other online channels (e.g., Google Search; Geva et al., 2017) as well as offline media (e.g., television; Fossen and Schweidel, 2019). Taken together, these studies demonstrate that not all platforms or channels are created equal and it is important to take account of their differences and dynamics. However, it seems that social media research published in this special issue and other OM journals (e.g., Lam et al., 2016) has paid limited attention to such differences and dynamics, which suggests that future research can adopt an OSCM perspective to fill this important knowledge gap.

3.2 Research topics

Marketing-related topics have become the mainstream in social media research, but the 159 social media papers also cover other business topics ranging from knowledge sharing to crowdsourcing. After reading the 159 papers, we identify a few research topics that are relevant to OSCM and to which OM researchers could make some important contributions, as discussed below.

The dark sides of social media in OSCM. News media and the public have paid much attention to the dark sides of social media usage. Some recent examples include the spread of COVID-19 misinformation on social media (Suciu, 2020) and the use of personal data obtained from Facebook for political advertising (Chan, 2019). Business researchers, on the other hand, have also started to reveal

new insights into the dark sides of social media. For instance, Lowry et al. (2016) develop a social media cyberbullying model to explain why heavy social media use and perceived anonymity increase individuals' willingness to engage in cyberbullying on social media, and Krasnova et al. (2015) uncover the mediating role of envy in the relationship between social information consumption on social media and unfavourable outcomes such as reduced subjective well-being and increased reactive self-enhancement. Two social media papers published in this special issue also join in the conversation about the dark sides of social media from the OSCM perceptive: Tang et al. (2020) explain how using social media during non-working hours for work purposes can lead to emotional exhaustion and thus increase the turnover intentions of supply chain professionals, while Tóth et al. (2020) argue that being "too social" on social media can reduce suppliers' attractiveness as perceived by buyers. In addition to encouraging more OM researchers to join in this important conversation, we believe that the OM research community, with rich experiences of conducting research on operations and supply chain risk management, should be able to offer some new insights and useful advice about how to address the dark sides of social media.

The spillover effects in OSCM through social media. Spillover effects are an important research topic across different business disciplines. In general, a spillover effect refers to the extent to which an event occurring in one context affects the occurrence of another event in a seemingly unrelated context (Borah and Tellis, 2016; Huang et al., 2015). The rise of social media provides an interesting context for studying spillover effects due to the visibility of the events occurring on social media and the observable interconnected relationships among different parties shown on social media. This suggests that researchers can consider spillover effects between non-social media events and social media events or spillover effects across different social media events. For instance, while Borah and Tellis (2016) investigate the spillover effects of a firm's product recall on social media sentiments towards other products of the same firm as well as other firms' competing products, Huang et al.'s (2015) research on employees' blogging behaviours shows that employees' leisure-related blog posting has positive spillover effects on both work-related blog posting and the readership of work-related posts. However, combining social media with supply chains to study spillover effects is relatively rare, providing an opportunity for OM researchers to make some interesting contributions. In particular, OM researchers can explore the spillover effects of firms' non-social media events on their supply chain partners' social media events (e.g., how suppliers' environmental violations affect their buyers' social media sentiments) or the spillover effects across social media events of different supply chain partners (e.g., how buyers' social media posting behaviours affect their suppliers' social media posting behaviours).

The performance outcomes of using social media in OSCM. The performance outcomes of social media activities are a popular research topic across the 159 social media papers. Business researchers have investigated the impacts of using social media on various performance outcomes such as customer satisfaction, product innovation, labour productivity, job security, and shareholder value (e.g., Chen et al., 2014; Deng et al., 2018; Hildebrand et al., 2013; Leonardi, 2014; Wu, 2013), although product sales

remain the most researched performance indictor (Chen et al., 2015; Gelper et al., 2018; Geva et al., 2017; Song et al., 2019a). Several social media papers published in this special issue also use performance outcomes as their dependent variables. For instance, Guo et al. (2020) investigate how using social media for customer service affects firm reputation, while Wang et al. (2020) unpack the impact of social media analytics on customer satisfaction. A few social media papers published in other OM journals (e.g., Lam et al., 2016; Ko et al., 2019) focus on performance outcomes as well, showing a common interest in this research topic. Nevertheless, there are still a few areas in which OM researchers can make some meaningful contributions. First, OM researchers can further explore other OSCM-related performance outcomes such as inventory leanness, delivery time, product quality, supply chain resilience, and supply chain efficiency, enriching the existing literature that is dominated by product sales. Moreover, similar to our discussion on spillover effects, OM researchers can take a SCM perspective to consider how the social media activities of one party might affect the performance outcomes of another party along a supply chain. Relatively, OM researchers can conduct cross-level analyses of the relationships between social media usages and performance outcomes at different levels (e.g., individual, team, firm, supply chain). An example is Cui et al. (2020) published in this special issue who study how social media usage at the team level influences job performance at the individual level.

3.3 Theoretical perspectives

Although theories are not commonly mentioned in the keywords of the 159 social media papers, more than half of the papers make explicit use of theories in their texts. In fact, we were able to identify over 100 theories or theoretical perspectives across the 159 papers. Due to space constraints, we cannot introduce all these theoretical perspectives in this editorial but focus on a few of them that are relevant to OSCM and can be used to theorise the use of social media in OSCM, as discussed below.

Theory of communication visibility. Theory of communication visibility focuses on the implications of adopting information technologies such as social media to make originally invisible communications between two parties become visible to third parties (Leonardi, 2014, 2015; Cui et al., 2020). For example, on an enterprise social media platform, an employee is able to observe the communication between two other employees enabled by the platform. This theory posits that such communication visibility consists of two different dimensions: message transparency, i.e., third parties can view the content of the communication messages, and network translucence, i.e., third parties can see the structure of the communication networks. Ultimately, increased communication visibility enables those third parties to improve their metaknowledge of "who knows what" and "who knows whom." Applying this theory to the enterprise social media context, Leonardi (2014) suggests that improved metaknowledge allows employees to create innovative products and avoid duplicating work if they can switch from experiential learning to vicarious learning and move from reactive information search to proactive knowledge aggregation. Cui et al.'s (2020) research published in this special issue

also relies on this theory to explain how adopting social media within a team increases communication visibility and encourages team members to share knowledge, which in turn benefits the knowledge sharers in terms of job performance. In addition to the internal operations context, OM researchers can apply this theory to study the implications of adopting social media in the supply chain context in which the communications between two supply chain members are visible to third parties (e.g., buyer-suppler communications are visible to other suppliers, supplier-supplier communications are visible to buyers). Relatively, this theory can also be used to investigate the dark sides of using social media in OSCM by focusing on the risks of being "too visible" on social media.

The affordance perspective. The affordance perspective, as Zammuto et al. (2007, p. 752) put it, "recognizes how the materiality of an object favors, shapes, or invites, and at the same time constrains, a set of specific uses." This perspective has been widely adopted by business researchers to study the use of information technologies and more recently, social media use (Karahanna et al., 2018; Vaast et al., 2017; Zammuto et al., 2007). Prior social media research has identified "a set of specific uses" afforded by social media such as self-presentation (enable users to reveal and present information related to themselves), content sharing (enable users to share and distribute content unrelated to self to others), presence signalling (enable users to either indicate their presence or know if other users are accessible), and relationship formation (enable users to form relationships with other users) (see Karahanna et al. (2018) for a comprehensive list of social media affordances). Researchers also realise that different social media platforms (e.g., Facebook, Twitter, YouTube), with different features and functions, might enable different kinds of affordances (Hong et al., 2018; Karahanna et al., 2018). In addition to the materiality of the object, recent affordance studies emphasise the role of users in the use of the object. For example, Karahanna et al. (2018) suggest that individuals' use of social media depends on the extent to which social media provide affordances that satisfy the individuals' psychological needs (e.g., needs for autonomy, relatedness, and competence). Vaast et al. (2017) further extend the affordance perspective to consider the relationships not only between social media features and users but also between social media features and the interdependence among users in their analysis of Twitter use during the Gulf of Mexico oil spill in 2010. The affordance perspective can serve as a useful theoretical lens for OM researchers to study the use of social media in OSCM. In particular, as prior social media research has mainly adopted this perspective at the individual or intra-organisational levels (Vaast et al., 2017), OM researchers can conduct inter-organisational or supply chain levels of analysis to reveal new insights into social media affordances, social media features, social media users' roles, and interdependence among social media users that could be different from the individual-level analysis.

Various "social" theories. It is legitimate to apply "social" theories to study social media. Some commonly used "social" theories across the 159 papers include social capital theory, social exchange theory, social comparison theory, social learning theory, and social network theory (e.g., Beck et al., 2014; Cummings and Dennis, 2018; Gelper et al., 2018; Huang et al., 2019; Krasnova et al., 2015;

Lowry et al., 2016; Wang et al., 2019). Although these theories are not originally developed for studying social media or information technologies in general, they have been employed by business researchers to make sense of various social media phenomena. For example, Wang et al. (2019) adopt social capital theory to understand the differences between social media hub users and non-hub users in terms of structural, relational, and cognitive social capital and how such differences lead to different reposting behaviours of their followers on social media. Huang et al. (2019) rely on social learning theory to explain why adding the Facebook comment function to an e-commerce website can foster a positive or negative social learning process for website visitors, depending on the volume of the Facebook comments available on the website. Although these theories are not something new to OM researchers and have been applied in various OSCM contexts (Ketchen and Hult, 2007), they should still be useful for studying the use of social media in OSCM. In particular, the use of online social media might alter the OSCM phenomena (e.g., buyer-supplier exchange, supplier-supplier comparison, supply chain network) observed in the offline setting, enabling OM researchers to adopt these theories to revisit the underlying assumptions and gain new theoretical insights.

3.4 Research methods

In the call for papers for this special issue, we emphasised the importance of addressing potential methodological concerns such as common method bias and endogeneity issues as the use of social media in OSCM can be a self-selected, endogenous decision (Cheng et al., 2018). For example, some unobservable factors might affect the use of social media and performance outcomes simultaneously, inflating the relationships under investigation. Also, reverse causality is possible in the relationships between social media use and performance outcomes. We are grateful that papers published in this special issue do pay attention to these concerns with the adoption of various methods such as conducting controlled experiments (Banerjee et al., 2020), collecting data at multiple times (Cui et al., 2020; Tang et al., 2020), combining primary and secondary data (Wang et al., 2020), and performing dynamic panel data analyses (Guo et al., 2020). The keywords of the 159 social media papers published in other top business journals also indicate a great variety of methods used in social media research, as shown in Figure 4. Although it is impossible to cover all these methods in this editorial, we hope to introduce a few of them that deal with endogeneity issues directly based on secondary data, which may be useful for OM researchers to analyse the use of social media in OSCM.

Generalised method of moments (GMM). To estimate a regression model, GMM relies on instruments that are highly correlated with the endogenous regressors to be instrumented but orthogonal to the error term to address endogeneity concerns (Lam et al., 2016; Yiu et al., 2020). However, different from traditional instrumental variables (IV) techniques that use external variables as instruments, GMM constructs instruments based on the transformations of existing variables. This is an important advantage when it is difficult to obtain strictly exogenous instruments externally. Different GMM estimators construct instruments in different ways. For example, the difference GMM estimator

proposed by Arellano and Bond (1991) first transforms the original regression model into its difference form and then uses lagged endogenous regressors as instruments for the differenced endogenous regressors in the difference equation. The system GMM estimator, on the other hand, uses lagged differences as instruments to estimate the original regression model, in addition to the use of lagged levels as instruments in estimating the transformed difference equation (Arellano and Bover, 1995; Blundell and Bond, 1998). GMM has been increasingly used to estimate "dynamic" models in which lagged dependent variables are included as regressors in the regression models. For instance, in this special issue, Guo et al.'s (2020) research on the impact of social media-based customer service on firm reputation applies GMM to estimate a dynamic panel data model in which past firm reputation is included as an independent variable. Similarly, among the 159 social media papers, GMM is a popular choice for estimating panel vector autoregression models in which each variable is a function of its own past values as well as the past values of all other variables (Chen et al., 2015; Deng et al., 2018; Song et al., 2019a). An example is Song et al. (2019a) who use GMM to estimate a panel vector autoregression model that captures the dynamic interactions among movie box office revenue and user- and marketer-generated content on different social media platforms. Taken together, when investigating the use of social media in OSCM, OM researchers can consider applying GMM to address endogeneity concerns if dynamic panel data are used, fixed-effect estimations are not suitable (e.g., the number of time periods in the panel is too small), and traditional IV techniques do not work (e.g., strictly exogenous external instruments are not available).

Propensity score matching (PSM). In an observational study, it is less likely that observations are assigned to treated and untreated groups randomly, leading to possible selection bias. On the other hand, it is not always possible to conduct randomised experiments because of, for example, ethical issues or logistical constraints. To mimic the random assignment process and address endogeneity concerns, PSM matches treated observations with those untreated observations that have a similar propensity as the treated observations to be assigned to the treated group but eventually are assigned to the untreated group (Rosenbaum and Rubin, 1983). To implement PSM, researchers can first construct a logistic or probit regression model with the dummy dependent variable indicating whether an observation is assigned to treated or untreated groups while the independent variables include factors that might affect the assignment decision. After running the regression model and obtaining the expected probabilities or propensity scores for both treated and untreated observations, researchers can match treated observations with those untreated observations with similar propensity scores. A difference-in-differences (DID) estimation is usually performed after the matching process (e.g., Goh et al., 2013; Kumar et al., 2016; Rishika et al., 2013). DID enables researchers to compare the outcome changes between the treated observations and the matched untreated observations from pre-treatment period to post-treatment period. We use Rishika et al.'s (2013) research about the effect of customers' social media participation on their frequency of shopping visits as an example to illustrate these steps. To implement PSM, Rishika et al. (2013) first construct a logistic regression model with the dummy

dependent variable indicating whether customers participate in social media or not while the independent variables include customers' specific transaction and demographic characteristics that might explain their participation decision. After running the regression model and obtaining the propensity scores for all customers, the authors match each customer who participates in social media with another customer who does not participate but has a similar propensity score as the participating customer. Finally, the authors perform DID to compare the changes in the frequency of shopping visits between participating customers and matched non-participating customers from pre-participation period to post-participation period. This example may inspire OM researchers to adopt the PSM + DID approach to investigate the performance outcomes of using social media in OSCM, especially when randomised experiments are not possible but longitudinal data for both social media users and non-users are available.

Regression discontinuity design (RDD). RDD, introduced by Thistlethwaite and Campbell (1960), is another method to estimate treatment effects based on observational data when randomised experiments are not feasible. However, different from PSM, RDD "does not rely upon matching to equate experimental and control groups" (Thistlethwaite and Campbell, 1960, p. 315). Instead, RDD identifies the determiner of treatment assignment and relies on observations near the cutoff or threshold for treatment assignment to enable "locally randomized experiments" (Lee and Lemieux, 2010, p. 349). We use Thistlethwaite and Campbell's (1960) research about the effect of receiving scholarships on students' future academic outcomes as an example to illustrate RDD's logic. The allocation of scholarships is not a random assignment but based on, for example, observed test scores (i.e., this is the determiner of treatment assignment). For instance, the scholarship committee can decide that students with test scores higher than 70% will receive the scholarships (i.e., this is the threshold for treatment assignment). The premise of RDD is that students with test scores near the threshold (e.g., 69% to 71%) should be comparable, and the assignment of them to the treated (i.e., awarded scholarships) and untreated (i.e., not awarded scholarships) groups can be "as good as randomized." (Lee and Lemieux, 2010, p. 293). As a result, any jump or discontinuity in future academic outcomes around the threshold can be attributed to the effect of receiving scholarships. Since its introduction about 60 years ago, RDD has been used in different disciplines and advanced with the development of various new tests and extensions (see, e.g., Imbens and Lemieux (2008), and Lee and Lemieux (2010) for more detailed discussions). Recently, business researchers have started to apply RDD to social media research (e.g., Ghose et al., 2012; Li, 2018). For example, in his research about the impact of average review ratings on consumers' social media endorsements, Li (2018) relies on Yelp's practice to round average review ratings to the closest half star as the determiner of treatment assignment. This rounding practice enables the author to attribute the discontinuity in consumers' social media endorsements to the extra half star in the displayed Yelp ratings. A recent social media paper published in *POM* (i.e., Lee et al., 2018) also uses RDD to examine movie studios' manipulation of Twitter sentiments. The authors use movies' release dates as sources of exogenous shocks (i.e., the threshold) and document significant drops in the

movies' Twitter sentiments on the release dates, indicating possible sentiment manipulation. These examples may inspire OM researchers to adopt RDD to investigate the use of social media in OSCM when the determiner of treatment assignment can be clearly identified. For instance, if a buyer decides whether suppliers can join its online community based on a specific criterion (e.g., firm size), we can view joining the online community as a treatment assignment and the specific criterion as the determiner of treatment assignment, making the application of RDD possible. However, if there is no specific criterion for the suppliers to join the online community, the determiner of treatment assignment is unclear and thus the use of RDD is questionable. Instead, PSM, by matching suppliers' propensity to join the online community based on a logistic or probit regression, could be more appropriate in this case.

4. Final remarks

It is not easy for OM researchers to embrace social media research due to the potential conflict between OM tradition and the disruptive nature of social media. Traditional OM is focused on scientific management, standard procedures, and formal documentation, but the activities on social media tend to be informal, unstructured, and less controllable. Therefore, OM researchers might need to change their mindsets when moving to social media research. This may explain why we could not see any social media research published in the top three OM journals until 2014, as shown in Figure 2. Fortunately, it seems that there have been more social media papers published in these OM journals in recent years. In addition to the seven papers published in this *IJOPM* special issue, we are happy to see quite a few social media papers being published or accepted for publication in *JOM* and *POM* over the past few months (e.g., Schmidt et al., 2020; Yoo et al., 2020). Taken together, we hope this momentum can motivate more OM researchers to engage in this emerging research area and to advance our understanding of the social media phenomenon.

Finally, we would like to acknowledge a few limitations of the approach used to identify social media papers for our review. In particular, our searching approach that focused on the past ten years and used "social media" as the search term should miss social media papers published before 2010 and those not mentioning "social media" in their titles, abstracts, or keywords. We also ignored social media papers that are not published in the 4* journals identified via the Academic Journal Guide 2018. Although we believe this searching approach is in line with our review objective, which is to learn from recent papers published in top business journals with a clear focus on social media, we encourage researchers with sufficient time and resources to conduct a more comprehensive review with a longer investigation period, a richer set of search terms, and a broader journal list.

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Figure 1. Number of articles in Factiva mentioning social media and OSCM across years

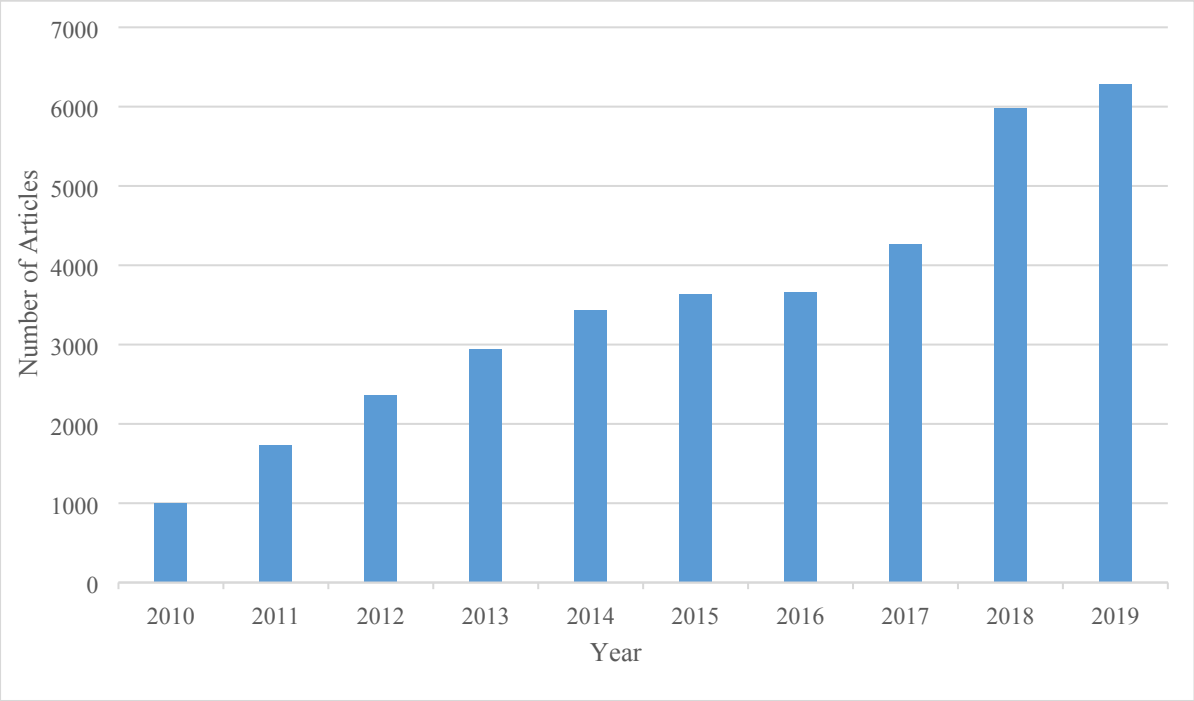
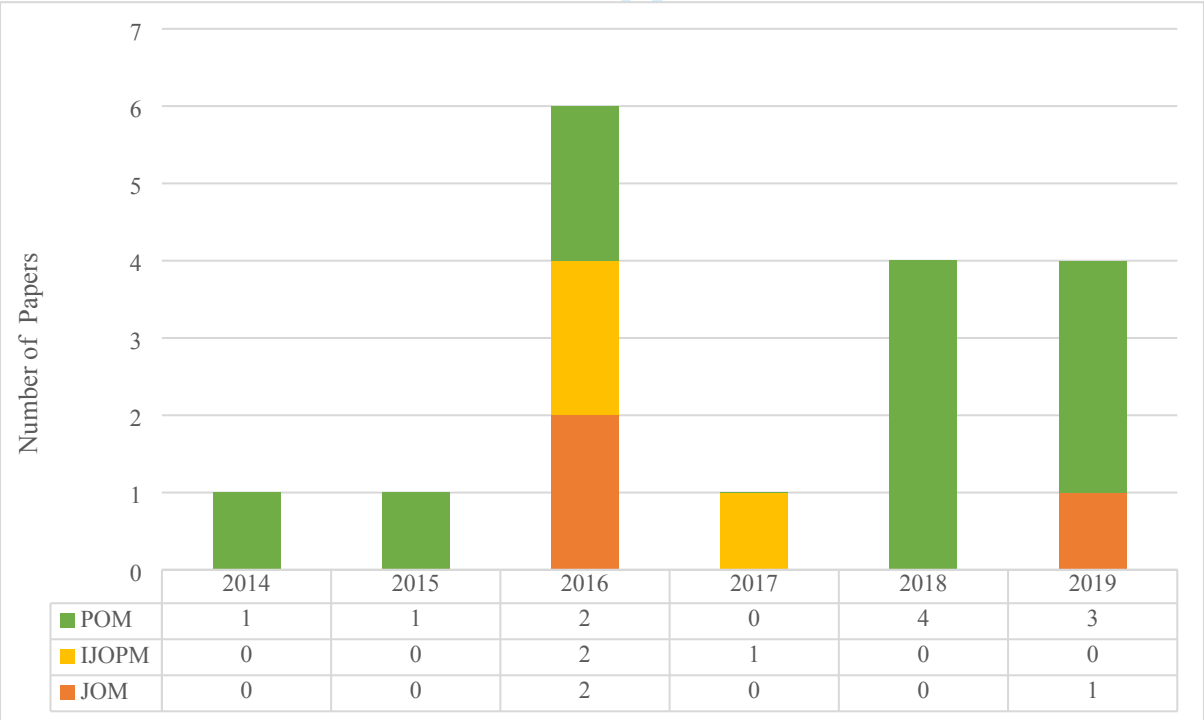
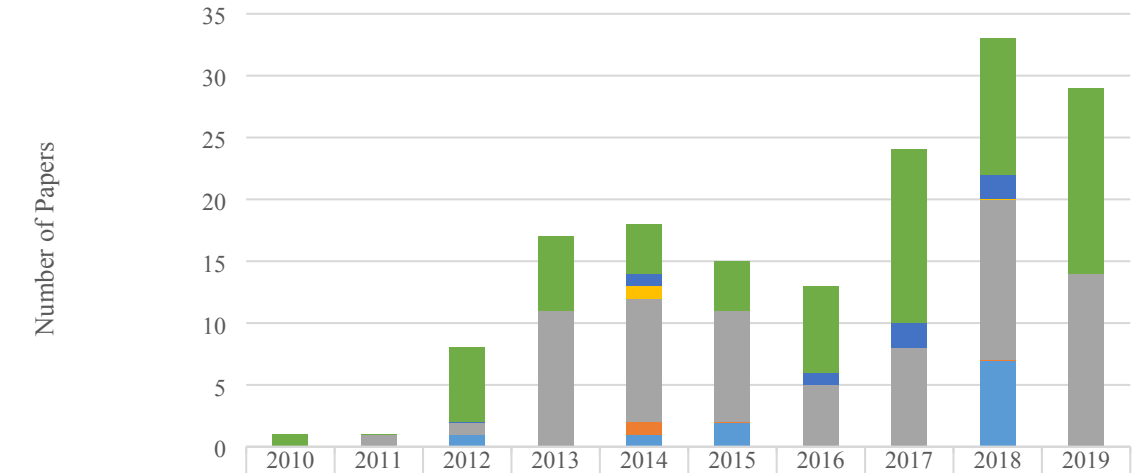


Figure 2. Number of social media papers published in the top three OM journals across years



	2014	2015	2016	2017	2018	2019
POM	1	1	2	0	4	3
IJOPM	0	0	2	1	0	0
JOM	0	0	2	0	0	1

Figure 3. Number of social media papers published in other 4* business journals across years



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Marketing	1	0	6	6	4	4	7	14	11	15
Management	0	0	0	0	1	0	1	2	2	0
Innovation	0	0	0	0	1	0	0	0	0	0
Information Systems	0	1	1	11	10	9	5	8	13	14
Finance	0	0	0	0	1	0	0	0	0	0
Accounting	0	0	1	0	1	2	0	0	7	0

Figure 4. Word cloud generated based on the keywords of the 159 social media papers

Table 1. Summary of the seven social media papers published in this special issue

Authors	Title	Keywords	Key Research Question	Theory	Method
Banerjee, Ries, and Wiertz	The impact of social media signals on supplier selection: Insights from two experiments	Supplier selection, B2B markets, social media, product reviews, eWOM, valence, volume, signalling theory	How do buyers respond to social media signals in the supplier selection process?	Signalling theory	Choice-based conjoint experimental design
Cui, Huo, Lei, and Zhou	The influence of team social media usage on individual knowledge sharing and job performance from a cross-level perspective	Job performance, social media usage, cross-level analysis, extra-role knowledge sharing, in-role knowledge sharing, performance norms	How does team social media usage affect team members' in-role and extra-role knowledge sharing, and then individual job performance?	Theory of communication visibility	Three-wave survey from 600 individuals in 120 teams
Guo, Fan, and Zhang	Social media-based customer service and firm reputation	Social media, customer service, reputation	How does using social media for customer service affect a firm's reputation building?	Resource dependence theory	Dynamic panel data analyses of 115 firms from 2007 to 2016 based on secondary data from five databases
Tang, Ren, Chadee, and Yuan	The dark side of social media connectivity: Influence on turnover intentions of supply chain professionals	China, work-life balance, supply chain management, turnover intention, emotional exhaustion, social media connectivity	How does social media connectivity influence the voluntary turnover of supply chain professionals?	Conservation of resources theory	Survey data collected at multiple times from a large Chinese pharmaceutical manufacturer and distributor
Tóth, Liu, Luo, and Braziotis	The role of social media in managing supplier attractiveness: An investigation of business-to-business markets	Social media, supplier selection, buyer-supplier relationships, supplier attractiveness	How do suppliers' social media activities influence their attractiveness as perceived by buyers?	Organizational attractiveness	Interviews with 57 senior managers from both supplier and buyer sides
Wang, Zhang, Tse, and Chan	Unpacking the impact of social media analytics on customer satisfaction: Do external stakeholder characteristics matter?	Social media analytics, contingency theory, service operations, customer satisfaction	How does the impact of social media analytics on customer satisfaction depend on the characteristics of different external stakeholders?	Contingency theory	Structural equation modelling using both subjective and objective measures from multiple sources
Zhan, Tan, Chung, Chen, and Xing	Leveraging social media in new product development: Organisational learning processes, mechanisms and evidence from China	Social media, new product development, organisational learning, case study, China	How can social media provide important platforms to facilitate organisational learning and innovation in the new product development process?	Organisational learning	Multiple case study approach based on 56 interviews with 13 world-leading Chinese companies

Table 2. Number of social media papers published in other 4* business journals

Discipline	Journal	Number of Papers
Accounting	Accounting Review	3
Accounting	Accounting, Organizations and Society	5
Accounting	Journal of Accounting and Economics	0
Accounting	Journal of Accounting Research	3
Finance	Journal of Finance	0
Finance	Journal of Financial Economics	0
Finance	Review of Financial Studies	1
Information Systems	Information Systems Research	35
Information Systems	Management Science (Information Systems Department)	9
Information Systems	MIS Quarterly	28
Innovation	Research Policy	1
International Business	Journal of International Business Studies	0
Management	Academy of Management Journal	1
Management	Administrative Science Quarterly	0
Management	Journal of Management	1
Management	Organization Science	2
Management	Strategic Management Journal	2
Marketing	Journal of Consumer Psychology	3
Marketing	Journal of Consumer Research	8
Marketing	Journal of Marketing	14
Marketing	Journal of Marketing Research	16
Marketing	Journal of the Academy of Marketing Science	9
Marketing	Management Science (Marketing Department)	3
Marketing	Marketing Science	15

Appendix

Table A1. List of reviewers for this special issue

Reviewer	Affiliation	Country
Adebanjo, Dotun	University of Greenwich	United Kingdom
Aigbedo, Henry	Oakland University	United States
Aitken, James	University of Surrey	United Kingdom
Angelis, Jannis	KTH Royal Institute of Technology	Sweden
Babbar, Sunil	Florida Atlantic University	United States
Baird, Kevin	Macquarie University	Australia
Barnes, David	University of Westminster	United Kingdom
Blankson, Charles	University of North Texas	United States
Bortolotti, Thomas	University of Groningen	Netherlands
Brandenburg, Marcus	Flensburg University of Applied Sciences	Germany
Brandon-Jones, Alistair	University of Bath	United Kingdom
Brax, Saara	LUT University	Finland
Broekhuis, Manda	University of Groningen	Netherlands
Bruccoleri, Manfredi	University of Palermo	Italy
Brusco, Michael	Florida State University	United States
Chan, Hing Kai	University of Nottingham Ningbo China	China
Chiarini, Andrea	University of Verona	Italy
De Leeuw, Sander	VU University Amsterdam	Netherlands
Dubey, Rameshwar	Montpellier Business School	France
Franke, Henrik	ETH Zurich	Switzerland
Goh, Mark	National University of Singapore	Singapore
Gruner, Richard	University of Western Australia	Australia
Gualandris, Jury	Western University	Canada
Hald, Kim	Copenhagen Business School	Denmark
Hill, Craig	Clayton State University	United States
Howard, Mickey	University of Exeter	United Kingdom
Jiménez-Jiménez, Daniel	Universidad de Murcia	Spain
Johnson, Mark	University of Warwick	United Kingdom
Johnson, William	Penn State Erie	United States
Joshi, Ashwin	York University	Canada
Kalchschmidt, Matteo	University of Bergamo	Italy
Kristensen, Thomas	Aalborg University	Denmark
Kumar, Maneesh	Cardiff University	United Kingdom
Laari, Sini	University of Turku	Finland
Leyer, Michael	University of Rostock	Germany
Matthias, Olga	Sheffield Hallam University	United Kingdom
Maylor, Harvey	University of Oxford	United Kingdom
McAdam, Rodney	Ulster University	United Kingdom
Peltokorpi, Antti	Aalto University	Finland
Prajogo, Daniel	Monash University	Australia
Ramanathan, Usha	Nottingham Trent University	United Kingdom
Roscoe, Samuel	University of Sussex	United Kingdom
Schmidt, Christoph	ETH Zurich	Switzerland
Son, Byung-Gak	City University of London	United Kingdom
Stock, Gregory	University of Colorado	United States
Tate, Wendy	University of Tennessee	United States
Wang, Yichuan	University of Sheffield	United Kingdom
Wen, Chao	Ohio Northern University	United States